

## FASTFAC OR FASTDAC?

CSC 1997

Subject Area - General

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Currently, the Marine Corps employs the F/A-18D as a fast forward air controller, or FastFAC, to control strike aircraft. The term FastFAC emerged from Vietnam and merely referred to the speed provided by jet engines when compared to the turboprop engines of slower observation aircraft. However, beyond the Fire Support Coordination Line (FSCL), the FastFAC does not control CAS like a typical Ground FAC. This is because there are no friendly forces on the ground. Instead, the FastFAC controls interdiction sorties dedicated to shaping the battlefield for future operations. Therein lies the argument: in the FastFAC designation, the “FAC” portion is a misnomer, for it implies that ordnance is being delivered from CAS aircraft in close proximity to Marines on the ground. Thus, I have coined the non-doctrinal term “**FastDAC**”, for fast deep air controller. My FastDAC will define a tactical jet controlling interdiction aircraft beyond the FSCL.

Though it was not labeled as such, the FastDAC first proved to be relevant in Vietnam and absolutely vital in Operation Desert Storm. However, during these conflicts, FastDAC was conducted “on the fly”, because neither the Marine Corps nor the Air Force possessed adequate doctrine. Because the role was not defined, the lack of doctrine made training for the mission an impossibility.

Thus, this article will argue three contentions. First, U.S. aviation forces relegated the FastFAC mission to tactical jets doing on-the-job training (OJT) during

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE <b>1997</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-1997 to 00-00-1997</b>	
4. TITLE AND SUBTITLE <b>FastFac or FastDac?</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Marine Corps War College,Marines Corps University,Marines Corps Combat Development Command,Quantico,VA,22134-5067</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>18</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			

Vietnam and Operation Desert Storm. Second, the Marine Corps must embrace the concept of VMFNA squadrons conducting FastDAC. Lastly, the Marine Corps' lack of doctrine is setting the stage for the Joint Strike Fighter (JSF) to potentially do FastDAC OJT on the future battlefield. OJT will fail to keep pace with the tempo of operations in 2010.

### **Vietnam**

In Vietnam, three problem areas emerged in airborne air control: target identification, fratricide, and the survivability of the controlling aircraft. These problems were a function of the type of aircraft that did the controlling. Flying lower and slower allowed propeller-driven FAC aircraft to accurately identify targets and avoid fratricide; however, such aircraft were not survivable. *Flying higher and faster made jet aircraft more survivable; however, those capabilities complicated target identification and increased the potential for fratricide.* **This is the compromise in jet airborne air control.** The development of this compromise began in 1965 at Soc Trang.

In Vietnam, the nature of guerrilla warfare placed a premium on surveillance and reconnaissance. Initially, the Cessna O-1s assigned to HMM-362 at Soc Trang bore that burden. As an interim solution to the shortage of these small, slow, propeller-driven aircraft, the Pentagon filled the void in 1967 with the purchase of the Cessna O-2A<sup>1</sup>. A year later, the next generation of aerial observation aircraft arrived at Da Nang, with the new OV-10As assigned to VMO-2.

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<sup>1</sup> Hightower, , Charles D., Major, USAF, *The History of the United States Air Force Forward Air Controller in World War II, the Korean War, and the Vietnam Conflict*, Monograph No. AD-B087 139, Defense Technical Information Center (Fort Belvoir, Va.: 1984), 89.

Two developments led to the Marine Corps' abandonment of the "low 'n' slow" O-1, O-2, and OV-10. The first was the increased number of interdiction missions required in two particular areas: the Ho Chi Minh Trail and the coastal region of North Vietnam. The second development was the growing lethality of an air defense system employing Soviet surface-to-air missiles (SAMs) and anti-aircraft artillery (AAA).

To counter these two developments, the Marine Corps devised the FastFAC in 1966, employing two-seat F-9 fighter/attack jet aircraft.<sup>2</sup> However, the Marine Corps possessed no doctrine for this new mission, which meant that aviators could not effectively train. Thus, FastFAC advocates proceeded with OJT. However, the Marine Corps wrongly labeled this new mission as Airborne Tactical Air Coordinator, or TAC(A). Previously, the TAC(A) mission was strictly the OV-10's bailiwick, due to its lengthy endurance and strong communications suite. The Marine Corps wrongly assumed that since the F-9 was replacing the OV-10, the F-9 could do the OV-10 TAC(A) mission. But this new FastFAC mission, mislabeled as TAC(A), was actually the origin of the FastDAC. The intent of the F-9 was to control interdiction sorties beyond the FSCL.

In August of 1967, the TAC(A) role was relegated to the new two-seat TA-4F. The title of this FastDAC mission was altered to VR/TAC(A), with the VR representing visual reconnaissance. However, the TAC(A) misnomer remained, and there were still no formal procedures or training. A step in the right direction occurred with the establishment of a 7-10 day exchange program with Air Force F-100 pilots at Phu Cat who were experimenting with the same mission. In 1969, the "Playboys" of

Headquarters and Maintenance Squadron Eleven (H&MS-11) finally standardized the mission using a 1968 manual of Standard Operating Procedures (SOP).

While Marine Aviation unknowingly struggled with the FastDAC concept, the USAF experienced the same difficulties. Initially, Air Force FACs flew the same O-1, O-2, and OV-10 aircraft as the Marine Corps. Thus, it is not surprising that they were replaced with tactical jets for the same two reasons: the inability to range the Ho Chi Minh Trail and the increased surface-to-air threat. The introduction of high performance jets to control interdiction aircraft -- and not CAS aircraft -- required a complete change in the mission. Airborne air control was quickly evolving into FastDAC.

This change in mission led to the Air Force FastFAC. Code named “Misty”, the initial FastFAC missions were flown by two-seat F-100F Super Sabres in June of 1967.<sup>3</sup> These pilots were strictly volunteers, and usually experienced combat veterans. Foregoing the opportunity to ever shoot down a MiG, these hardy volunteers dedicated themselves to one of the most dangerous missions of the Vietnam War.<sup>4</sup> In March of 1968, 7<sup>th</sup> Air Force Headquarters ordered F-4s from the 366<sup>th</sup> Tactical Fighter Wing (TFW) to be tested as FastFAC platforms. F-4 pilots went to Phu Cat and flew five missions in the rear seat of the F-100F, while the Misty back-seat FACs went to Da Nang for three flights in the F-4. These F-4 FastFAC missions were code named “Stormy”, and tactics differed very little from those of the Misty FastFACs. This validated that the compromise of jet airborne air control still held true.

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<sup>2</sup> John W. Ellis, Jr. “The Airborne Forward Air Controller: Past Accomplishments and Future Opportunities,” lecture presented at the 1978 Air University Air Power Symposium, Air War College, Maxwell Air Force Base, Montgomery, Alabama, 15 February 1978, 15.

<sup>3</sup> John Schlight, LtCol. USAF, “Jet Forward Air Controllers in SE Asia”, *The Project CHECO Report*, Contemporary Historical Examination of Current Operations, (HQ, PACAF: 1969), 12.

<sup>4</sup> Ibid., 24.

The limited success of the Air Force's FastFAC experiment was attributed to one thing: a poor choice in aircraft. The flight characteristics of the F-100 and the F-4 were no comparison to the TA-4F's slick combination of visibility, speed, and maneuverability. Second, the Air Force was slow to embrace the FastFAC concept. The Marine Corps' 1966 jump start with the F-9 was a full year ahead of the Air Force's 1967 Misty Program. However, the Air Force was first in establishing FastFAC doctrine. Whereas the Marine Corps plagiarized an old H&MS-11 SOP in 1969 to standardize FastFAC procedures, the Air Force had already published the 366<sup>th</sup> TFW Operation Plan 10-68 in September of 1968. This doctrine outlined Stormy procedures for VR, strike control, Bomb Damage Assessment (BDA), training, crew coordination, and operating minimums.<sup>5</sup>

### **Lessons from Vietnam**

In 1973, the Joint Technical Coordinating Group for Munitions Effectiveness at the Naval Weapon Center, China Lake, formed a Target Acquisition Working Group (TAWG) for the specific purpose of studying airborne air control. To obtain data, the TAWG sent questionnaires to airborne FACs from Vietnam, to which twenty-four Marine Corps and fifty Air Force aviators responded. Unfortunately, only two with FastFAC experience replied, one from each service. The report confirmed what had been so sadly demonstrated in Vietnam: formal training in FastFAC procedures was not present in Marine or Air Force training programs. The lone Air Force FastFAC respondent admitted that his unit consisted of volunteers who received OJT.

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<sup>5</sup> Schlight, 24.

Concerning the TAWG survey, the compiled results from both services were amazingly similar. Both the Marine Corps and the Air Force experienced the same difficulties in conducting the airborne FAC mission. However, the weak response from those with FastFAC experience clearly implied that the shared experiences reported by the TAWG were in conducting airborne forward air control (FAC(A)), and not FastFAC.

For all airborne FACs who returned the survey, the most difficult aspects of the mission were target location and strike execution.<sup>6</sup> First consider target location. Since ninety-seven percent of the respondents were FAC(A)s who flew low and slow to identify targets, a logical assumption would be that some factor other than the FAC(A)'s altitude and airspeed prevented his locating the target. This assumption was validated by the questionnaire's follow-on inquiry: "what prevented target identification?" The four most common reasons were the target being completely hidden by foliage or obscured by foul weather, or the friendlies not knowing or being unable to mark their position. It is reasonable to assume that these same failures would have occurred for a FastFAC under the same conditions.

Next, consider the difficulty in strike execution. Here, the one most common reason for failure was the enemy's ability to withdraw before the attack could be executed. That is a sad indictment of the Command and Control (C2) system employed in Vietnam. Respondents repeatedly asserted that the lack of a quick response to their air request was their greatest disappointment. Some stated that the minimum amount of time from strike request to aircraft check-in was one hour. At even a moderate walking pace, this allowed the enemy to evade an attack as long as foliage concealed his departure.

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<sup>6</sup> Schlight, 40.

Since FastFACs operated as single aircraft and carried no air-to-ground ordnance, this same failure would have hampered both Marine Corps and Air Force FastFACs.

A better source of FastFAC effectiveness is found in a 1969 CHECO report entitled *Jet Forward Air Controllers in SE Asia*. This document is more applicable than the TAWG survey because it specifically examined jet forward air controllers. This CHECO report called using jets as FACs an “experiment” and deemed it to be a success. By September of 1968, enough data had been compiled from the Air Force’s Misty experiment to confirm the value of the FastFAC. The CHECO statistics compared the results of strike aircraft on an armed reconnaissance mission without a FastFAC against those of strike aircraft who attacked a target under FastFAC control. The chances of confirmed BDA doubled when a FastFAC was present. The average FastFAC sortie resulted in a .97 BDA occurrence; whereas strike aircraft alone achieved a .41 BDA occurrence.<sup>7</sup> Armed reconnaissance air strikes were less than half as effective when conducted without a FastFAC. These results laid dormant for twenty-three years, until the services of the FastDAC were required once again.

### **Operation Desert Storm**

Operation Desert Shield caught Marine Corps airborne air control on its heels. The Marine Corps scrambled to get OV-10s to the Gulf for one reason. In a ground war likely to become a costly meat grinder, the OV-10 would prove invaluable as a FAC(A). Almost as an afterthought, the role of Desert Storm FastFAC was thrust upon VMFA(AW)-121 from MCAS El Toro, California. The “Green Knights” were assigned

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<sup>7</sup> Schlight, 9.



this mission for no other reason than their being the only squadron in the Marine Corps that possessed the new two-seat F/A-18D.

In the Gulf, USAF Lieutenant General Charles A. Horner, was designated as the Joint Air Forces Component Commander, or JFACC. From his headquarters in Riyadh, he devised an air campaign to defeat the Iraqi ground forces that was calculated to occur in four distinct phases.<sup>8</sup> Operation Desert Storm was a “War on a Schedule”, consisting of a scripted air offensive, followed by a ground offensive that was not to commence until the attrition of fifty percent of the Iraqi ground forces in Kuwait had been completed.<sup>9</sup> This attritional objective was the sole reason for the FastFAC mission.

To counter the faceless characteristics of Middle Eastern desert terrain, the JFACC planning cell devised a method to control the distribution of air attacks. Its solution to the lack of visual reference points in the desert was the “kill box” system. In fact, these kill boxes were nothing more than grid references with an alpha-numeric designation.

AE-7	AF-7	AG-7
AE-6	<b>AF-6</b>	AG-6
AE-5	AF-5	AG-5

Each kill box was thirty miles per side, and further subdivided into four quadrants that were fifteen miles per side. These smaller quadrants were then labeled as such: northwest, northeast, southeast, and southwest.

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<sup>8</sup> Fred Frostic, *Air Campaign Against the Iraqi Army in the Kuwaiti Theater of Operations*, Monograph No. AD-A282 318, Defense Technical Information Center (Fort Belvoir: 1994), 1.

<sup>9</sup> Ibid., XIII.

AF-6	AF-6
Northwest	Northeast
AF-6	AF-6
Southwest	Southeast

These kill boxes were key to the FastFAC procedures employed by VMFA(AW)-121. FastFAC departures were scheduled so that the F/A-18D and his escort arrived into their assigned kill box fifteen minutes prior to interdiction aircraft. This allowed the F/A-18D to conduct a VR for the assigned targets. If unable to accurately identify the target from his altitude sanctuary, the FastFAC was forced to descend and perform the same low altitude tactics performed in Vietnam. In either case, FastFACs employed a modified version of the standard CAS nine-line brief to orient the strike aircraft. Then the FastFAC timed the firing of a White Phosphorous (WP) rocket to mark the target thirty seconds prior to strike aircraft arrival. With a good mark and the strike pilot sighting the target, the FastFAC turned the target over to the flight lead for “circle-the-wagons” attacks.

It is important to analyze these FastDAC procedures. Recall that armed reconnaissance implies that the aircraft is going to both locate and destroy the target entirely on his own. This was never the intention in the mission conducted by VMFA(AW)-121, for the F/A-18D carried no air-to-ground ordnance. The complete reliance upon separate attack aircraft to destroy a target that had been located by the F/A-18D proved that the FastDAC was not armed reconnaissance, but a completely different mission.

On 23 February, VMFA(AW)-121 commenced FastFAC surge operations, where the Green Knights maintained two FastFACs over Kuwait. At seven minute intervals, the DASC routed strike aircraft to a main CAS stack for the I MEF Ground FACs or OV-10 FAC(A)s. Excess CAS sorties were routed to two flanking CAS stacks, where they were controlled by an F/A-18D in a kill box. The next day, the start of the ground campaign was accompanied by a deluge of CAS. However, the anticipated CAS surge was never needed. These unused sorties were diverted north to be used by the FastFACs.

In doing this, the Marine Corps inadvertently validated the Air Force's concept of battlefield shaping. It has long been Air Force theory that if a ground unit must resort to CAS, then some aspect of the shaping effort was grossly wrong. The Air Force contends that CAS is an inefficient use of an airplane. In Desert Storm, the shaping effort of the Marine Corps FastDAC had proven that theory to be true.

More importantly, the true measure of FastFAC effectiveness can be found in the interrogation reports of Enemy Prisoners of War, or EPWs. As VMFA(AW)-121 controlled attacks upon Iraqi artillery, armor, and vehicles, Iraqi ground forces quickly learned that their equipment was the main focus of effort. In the words of one Iraqi EPW, "The love affair between tank and tankers ended."<sup>10</sup> Thus, they moved away from their vehicles, which led to a decrease in maintenance and a lack of preparation for combat. Another effect of the FastDACs efforts was in stemming the daytime flow of supplies. One Iraqi EPW stated that "Supply runs now were made at night with the routes varied for safety reasons. As the war progressed, these runs became harder to

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<sup>10</sup> Cohen, Dr. Eliot A. *Operations and Effects and Effectiveness*, Vol. II of the *Gulf War Air Power Survey* (Washington, D.C.: Government Printing Office, 1993), 321.

make as more trucks were damaged and the fuel became scarcer.”<sup>11</sup> After the war, several EPWs went so far as to state that the ground war was unnecessary, and had the air war continued for two or three weeks longer, the Iraqi Army would have been forced to withdraw due to logistical strangulation.<sup>12</sup> The FastDAC was the key to success.

Since the TAWG survey revealed that both the Air Force and the Marine Corps experienced the same difficulties in airborne air control during Vietnam, one question logically follows. Did the same phenomenon occur in Desert Storm? In the Gulf, the Air Force conducted the same FastDAC mission with a few minor twists, and it provides an interesting comparison with the Marine Corps’ methods.

By the seventeenth day of the war, Air Force Brigadier General Buster Glosson was disappointed in the performance of the F-16’s under his command. The focus of effort for his 388<sup>th</sup> TFW had shifted to Republican Guard units in AE-6, AF-6, and AF-7; however, his Falcons were experiencing the same problems of target identification as the Marine F/A-18s. Rather than lower the minimum altitude and risk losing assets, General Glosson turned to the JFACC’s Special Tactics Planning Cell. Led by Colonel Clyde Phillips, the cell recalled the old Vietnam FastFAC. The new Block 40 F-16’s of the 388<sup>th</sup> were all equipped with the Global Positioning System - the most accurate navigational system of any F-16’s in the Gulf - so the only question was which squadron in the 388<sup>th</sup> would pick up the FastFAC role.<sup>13</sup> The mission fell upon the 4<sup>th</sup> Fighter

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<sup>11</sup> Ibid., 322.

<sup>12</sup> Williamson Murray, *Air War in the Persian Gulf* (Baltimore: The Nautical and Aviation Publishing Company of America, 1995), 300.

<sup>13</sup> Lieutenant Colonel Mark A. Welsh, USAF, “Day of the Killer Scouts” *Air Force Magazine*, (April 1993): 68.

Squadron (FS), which happened to have sixteen pilots with FAC experience, A-10 CAS experience, or both.<sup>14</sup>

General Glosson and Colonel Phillips desired to resurrect the old Vietnam FastFAC with a new name to prevent confusion with the FAC(A) mission conducted by the A-10 and OA-10. Thus, they decided that the term “Scout” was appropriate. However, unlike their Marine FastFAC counterparts, the F-16’s of the 4<sup>th</sup> FS were unable to mark targets with WP rockets. Instead, they were to mark targets using live bombs, hence the name “Killer Scouts”.

In method, the Air Force Killer Scouts performed a role very much like VMFA(AW)-121. Their first function was locating targets, which were assigned to the 4<sup>th</sup> FS by the kill box system. Normally, the kill boxes assigned to the Killer Scouts were north of 29°30’N across the center of Kuwait, thus creating a buffer between deep interdiction strikes and CAS.<sup>15</sup> This buffer was also in accordance with the second function of the Killer Scouts: to detect rapid, unplanned, friendly force progressions across the FSCL.<sup>16</sup>

The Killer Scouts arrived into their assigned kill box fifteen minutes prior to the attack aircraft for purposes of VR. If the assigned target was good, the Killer Scout marked it, and then cleared the assigned F-16s to attack it under flight lead control. Here a significant difference arises when compared with the marking techniques of the

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<sup>14</sup> Ibid., 68.

<sup>15</sup> Frostic, 19.

<sup>16</sup> 363<sup>rd</sup> Tactical Fighter Wing, “Killer Scout Procedures,” unpublished microfiche in the U.S. Air Force Historical Center, Bolling Air Force Base, Washington, D.C. Fiche number K-WG-363-SU-OP, frame 739.

F/A-18D. The Killer Scouts asked the strike aircraft for a “three minutes out” radio call, and then marked the target at two minutes prior to the briefed Time-on-Target (TOT).<sup>17</sup>. If the target was not valid, the Killer Scout led the F-16s to a more lucrative target that he had discovered during his VR. As the Killer Scout lead searched for targets and controlled strike aircraft, his wingman acted as an escort in the same manner as the single-seat F/A-18s that the Green Knights enjoyed.

The benefits of the Killer Scout mission were realized on that very first day. The pilots of the 4<sup>th</sup> FS discovered that targets assigned on that day’s Air Tasking Order (ATO) had been moved. Under the old system, they would have attacked those empty revetments. Upon locating new targets, the Killer Scouts controlled their brethren in attacks on them. For the first time in the air campaign, the Coalition had a method of obtaining accurate BDA.

The Killer Scouts also prevented fratricide. The situational awareness possessed by a Killer Scout on 28 February prevented Coalition aircraft from bombing “the mother lode just northeast of Jaliba”. This mass of armor happened to be a brigade of the 24<sup>th</sup> Infantry Division that had ventured beyond the FSCL.<sup>18</sup> The main thrust provided by the Army’s VII Corps and the left hook delivered by the XVIII Corps were both in the Killer Scout’s area of responsibility. Thus, the large number of fast-moving armored units and helicopters in these two Army Corps probably prompted such caution over fratricide.

The third major lesson quickly learned by the Killer Scouts was that they could not do both the FastFAC mission and simultaneously avoid the Iraqi surface-to-air threat.

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<sup>17</sup> Ibid., frame 740

<sup>18</sup> Cohen, 314.

Thus, their “avoid-the-threat” tactics promptly evolved into “pound-the-threat”.<sup>19</sup> Unlike their F/A-18D counterparts who carried no air-to-ground ordnance, the Killer Scouts could immediately turn and punish any Iraqi surface-to-air threats in their kill box that challenged their presence.

### **Lessons from the Gulf**

In Desert Storm, many important lessons concerning airborne air control were relearned from Vietnam. The first of these is that low ‘n’ slow observation aircraft were not survivable until the surface-to-air threat had been negated. Even then, Desert Storm demonstrated that the OV-10 and OA-10 should be restricted to the FAC(A) mission well behind the FSCL. Towards the end of January, a diminished surface-to-air threat suggested that Air Force A-10s could attack Iraqi forces in the tactical echelon. Thus, General Horner ordered A-10s deeper to attack the Republican Guard. In two days, ten A-10s were lost or damaged. The JFACC immediately aborted the idea and initiated the planning that led to the Killer Scouts. The Marine Corps relearned the same harsh lesson when it lost an OV-10 at the onset of hostilities that contained the squadron’s Commanding Officer.

A second major lesson relearned concerns air-to-ground ordnance on the FastDAC. The sad part is that it was foreshadowed by a respondent to the TAWG survey in 1973, who replied “FAC aircraft should carry a certain amount of heavy ordnance to handle targets of opportunity.”<sup>20</sup> For the FastFAC role in Desert Storm, the F/A-18D carried no dedicated air-to-ground ordnance. This became a problem when an F/A-18D

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<sup>19</sup> Welsh, 70.

<sup>20</sup> Ketchel, James M. and James J. McGrath, *A Study of Airborne Forward Air Control Operations*, Vol. I of the Joint Technical Coordinating Group, Target Acquisition Working Group Report (Santa Barbara, Ca: 1973), 94.

located lucrative targets, but had no air assets to control. After the escort ordnance had been expended, the only option left was descending into the dangerous region of SAMs and AAA to strafe with the gun. Those very circumstances led to an F/A-18D being hit by an Infrared (IR) guided SAM on 21 February. The aircraft safely returned to Shaikh Isa, but this episode clearly demonstrated that future FastDACs should carry more air-to-ground ordnance.

Marine Corps planners at all levels of command should understand the main limitation of the F/A-18D in the FastDAC role. This problem lies in the very designation that marks the fuselage of every two-seat Hornet in the fleet today: VMFA(AW). The F/A-18D is not all-weather capable. However, it does give the Marine Corps the world's best night and under-the-weather capabilities with its radar, Forward Looking Infrared Radar (FLIR), and Night Vision Goggles (NVG). A better designation for squadrons that employ the F/A-18D would be VMFNA - Marine fixed wing fighter night attack. The VMFNA designation would more properly carry the Marine Corps into the twenty-first century.

### **The Future of the FastDAC**

Operations in Bosnia-Herzegovina were a foreshadowing of the future battlefield. The classic war of 2010 will consist of Joint, non-linear warfare in the world's urban littorals. To achieve victory on this battlefield, the Navy and Marine Corps team are embracing the concept of Operational Maneuver from the Sea (OMFTS). The Marine Corps' aviation component of this operational maneuver will be the Joint Strike Fighter. Currently, the Marine Corps is on track to employ the JSF in a manner which repeats the same mistake from both Vietnam and Desert Storm. With no



development of FastDAC doctrine for OMFTS, there will be no capability to train to the mission. The result on the future battlefield will be the JSF conducting FastDAC OJT.

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